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Patent
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AMENDMENTS TO THE CLAIMS:

P.D. = 11/13/2000

The listing of claims shown below will replace all prior versions, and listings, of claims in the Application:

1. (Original) A method for separating a population of particles according to size comprising the steps of:

subjecting the particles to an optical gradient pattern having a defined spatial periodicity,

moving the gradient relative to the particles,

wherein the improvement comprises selecting the spatial periodicity of the gradient to have a differential effect on differently sized particles.

2. (Amended)The method of claim 1 wherein certain of the particles are smaller than the spatial periodicity of the gradient and certain of the particles are larger than the ~~period~~ spatial periodicity of the gradient.

3. (Original)The method of claim 2 wherein the larger particles are larger than the spatial periodicity of the gradient.

4. (Original)The method of claim 1 further including the step of varying the osmotic properties of the medium to change the size of the particles.

5. (Original)The method of claim 1 wherein the particles are biological particles.

6. (Original) The method of claim 5 wherein the biological particles are cells.
7. (Original) The method of claim 6 wherein the cells are red blood cells.
8. (Original) The method of claim 5 wherein the biological particles are liposomes.
- 9-14. (Cancelled)
15. (New) A method of sorting particles by size comprising the steps of:

providing an initial optical gradient pattern having a defined spatial periodicity;

moving the optical gradient pattern relative to the particles;

increasing the spatial periodicity of the optical gradient; and

moving the optical gradient pattern with the increased spatial periodicity relative to the particles.
16. (New) The method of claim 15, wherein the spatial periodicity of the optical gradient is progressively increased.
17. (New) The method of claim 15, wherein the initial optical gradient pattern has a defined spatial periodicity that is less than the particle size of a portion of the particles and greater than the particle size of another portion of the particles.
18. (New) The method of claim 15, wherein the particles are cells.

19. (New) A method of sorting particles by size comprising the steps of:

providing an initial optical gradient pattern having a defined spatial periodicity;

moving the optical gradient pattern relative to the particles a plurality of times;

varying the spatial periodicity of the optical gradient; and

moving the optical gradient pattern with the varied spatial periodicity relative to the particles a plurality of times.

20. (New) The method of claim 19, further comprising the step of again varying the spatial periodicity of the optical gradient and moving the optical gradient pattern with the varied spatial periodicity relative to the particles a plurality of times.

21. (New) The method of claim 19, wherein the particles are cells.